

We claim:-

1. A method for reducing the amount of residual monomer in aqueous polymer dispersions by aftertreatment with an initiator system, which comprises  
5     aftertreating the aqueous polymer dispersion with addition of an initiator system essentially comprising
- 10     a)   from 0.001 to 5% by weight, based on the total monomer amount used to prepare the polymer dispersion, of an inorganic salt of persulfuric acid,
- 15     b)   from 0.005 to 5% by weight, based on the total monomer amount used to prepare the polymer dispersion, of a methyl ketone, and
- 15     c)   optionally, catalytic amounts of a metal ion which is able to exist in a plurality of valence states.
2. A method as claimed in claim 1, wherein the methyl ketone is a compound of the formula
- 20                     
$$R^1-C(=O)-CH_3$$
- where  $R^1$  is a  $C_1$  to  $C_5$  alkyl group which can comprise functional groups and/or can be olefinically unsaturated.
- 25   3. A method as claimed in claim 1 or 2, wherein the inorganic salt of persulfuric acid is a sodium, potassium and/or ammonium salt.
- 30   4. A method as claimed in either of claims 2 and 3, wherein  $R^1$  is a methyl, ethyl, n-propyl, isopropyl, n-butyl or tert-butyl group.
- 35   5. A method as claimed in any of claims 1 to 4, wherein the inorganic salt of persulfuric acid and the methyl ketone are supplied to the aqueous polymer dispersion during the aftertreatment simultaneously by way of separate feeds.
- 40   6. A method as claimed in any of claims 1 to 5, wherein the major amount of the metal ions are added to the aqueous polymer dispersion in the aftertreatment prior to the inorganic salt of persulfuric acid and the methyl ketone.
7. A method as claimed in any of claims 1 to 6, wherein the total amount of metal ions is from 1 to 1000 ppm.

8. A method as claimed in any of claims 1 to 7, wherein said metal ions are iron, copper, manganese, vanadium, nickel, cobalt, titanium, cerium, chromium and/or silver ions.
- 5 9. A method as claimed in any of claims 1 to 8, wherein the aftertreatment is conducted in the presence of complexing agents.
10. A method as claimed in any of claims 1 to 9, wherein the pH of the polymer dispersion during the aftertreatment is  $\geq 2$  and  $\leq 10$ .